

MANUFACTURE OF FLAT SURFACED COMPOSITES COMPRISING POWDERED FILLERS IN A POLYMER MATRIX

ABSTRACT OF THE DISCLOSURE

Composite materials, particularly those that are highly filled, e.g. comprising about 60 to 70 volume% of finely powdered filler material in a polymer matrix, are made by dissolving the polymer in a volatilisable solvent and forming a homogeneous mixture of the components by high shear mixing. The solvent is then removed while maintaining complete homogeneity in the mixture by evaporating much of the solvent in a high shear mill, then extruding an extremely thin film or tape (e.g. 0.0125mm (0.0005in)) from which the remaining solvent is removed by heating without introducing any appreciable non-uniformity, such as bubble holes. Required bodies are formed from the dried film or tape by stacking the thin coherent layers, typically about 6 to 120, then heating and pressing the stack in a mold melting the polymer, uniting the separate layers and dispersing the melted polymer into the interstices between the filler particles.